



LODI CITY COUNCIL

Carnegie Forum
305 West Pine Street, Lodi

"SHIRTSLEEVE" SESSION

Date: June 4, 2019

Time: 7:00 a.m.

*and via conference call:

1311 Midvale Road
Lodi, CA 95240

&

Fairmont Rehab Hospital
960 S. Fairmont Avenue
Lodi, CA 95240

For information regarding this Agenda please contact:

Jennifer M. Ferraiolo

City Clerk

Telephone: (209) 333-6702

CANCELLED DUE TO LACK OF QUORUM

Informal Informational Meeting

A. Roll Call by City Clerk

B. Topic(s)

B-1 Receive Information Regarding the 200-Year Flood Risk Assessment (PW)

C. Comments by Public on Non-Agenda Items

D. Adjournment

Pursuant to Section 54954.2(a) of the Government Code of the State of California, this agenda was posted at least 72 hours in advance of the scheduled meeting at a public place freely accessible to the public 24 hours a day.

Jennifer M. Ferraiolo
City Clerk

All staff reports or other written documentation relating to each item of business referred to on the agenda are on file in the Office of the City Clerk, located at 221 W. Pine Street, Lodi, and are available for public inspection. If requested, the agenda shall be made available in appropriate alternative formats to persons with a disability, as required by Section 202 of the Americans with Disabilities Act of 1990 (42 U.S.C. Sec. 12132), and the federal rules and regulations adopted in implementation thereof. To make a request for disability-related modification or accommodation contact the City Clerk's Office as soon as possible and at least 72 hours prior to the meeting date. Language interpreter requests must be received at least 72 hours in advance of the meeting to help ensure availability. Contact Jennifer M. Ferraiolo at (209) 333-6702. Solicitudes de interpretación de idiomas deben ser recibidas por lo menos con 72 horas de anticipación a la reunión para ayudar a asegurar la disponibilidad. Llame a Jennifer M. Ferraiolo (209) 333-6702.



CITY OF LODI COUNCIL COMMUNICATION

AGENDA TITLE: Receive Information Regarding the 200–Year Flood Risk Assessment

MEETING DATE: June 4, 2019 (Shirtsleeve Session)

PREPARED BY: Public Works Director

RECOMMENDED ACTION: Receive information regarding the 200–Year Flood Risk Assessment.

BACKGROUND INFORMATION: California enacted Senate Bill (SB) 5 in 2007 titled “Central Valley Flood Protection Act of 2008.” SB 5 defines “urban level of flood protection” as the “level of protection that is necessary to withstand flooding that has a 1-in-200 chance of occurring in any given year, using criteria consistent with, or developed by, the California Department of Water Resources.” The bill is intended to strengthen flood management within the Sacramento-San Joaquin Valley region.

The civil engineering firm of Kjeldsen, Sinnock & Neudeck, Inc. has completed a study to collect existing flood and topographic data, and to perform hydraulic and hydrologic analysis of the Mokelumne River and the City of Lodi in order to determine the 200-year flood protection boundary, and to develop the 200-year flood protection map. The map will be used by the City to establish findings for new developments relating to the 200-year flood protection level.

The study also determined that isolated areas along Lodi Lake that could easily be improved to even further minimize 200-year flood risk exposure for certain areas within the City that were constructed prior to July 2016.

Council will receive a presentation from Staff outlining the background and compliance requirements for SB 5, a review of the 200-Year Floodplain Study, and information regarding the next steps needed toward compliance.

FISCAL IMPACT: Not applicable.

FUNDING AVAILABLE: Not applicable.

Charles E. Swimley, Jr.
Public Works Director

CES/CES/tdb

APPROVED: _____
Stephen Schwabauer, City Manager

The City of Lodi Public Works



200-Year Flood
Risk Assessment
Council Presentation
June 4, 2019

Overview

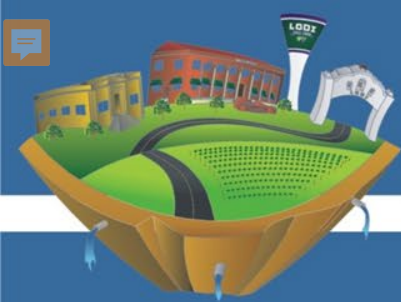


- Background Information of Senate Bill 5 (SB 5)
- Key Points of SB 5
- Results of 200-Year Floodplain Study
- City Options
- The Next Step – General Plan Amendment



Background Information

- The resulting losses of life from Hurricane Katrina in 2005 prompted California legislators to pass bills and bonds to strengthen the flood protection programs.
- California SB 5 in 2007 created new flood risk management requirements for urban areas and sought to strengthen the relationship between flood management and local land use decision making.
- Amendments to SB 5 (SB 1278 and AB 1965) provided extended compliance timelines and directed Department of Water Resources (DWR) to release 200-year floodplain maps for urban areas protected by State Plan of Flood Control (SPFC) facilities.
- Lodi is not protected by SPFC facilities so DWR did not prepare 200-year floodplain maps for Lodi.



Background Information

State Plan of Flood Control (SPFC) facilities.

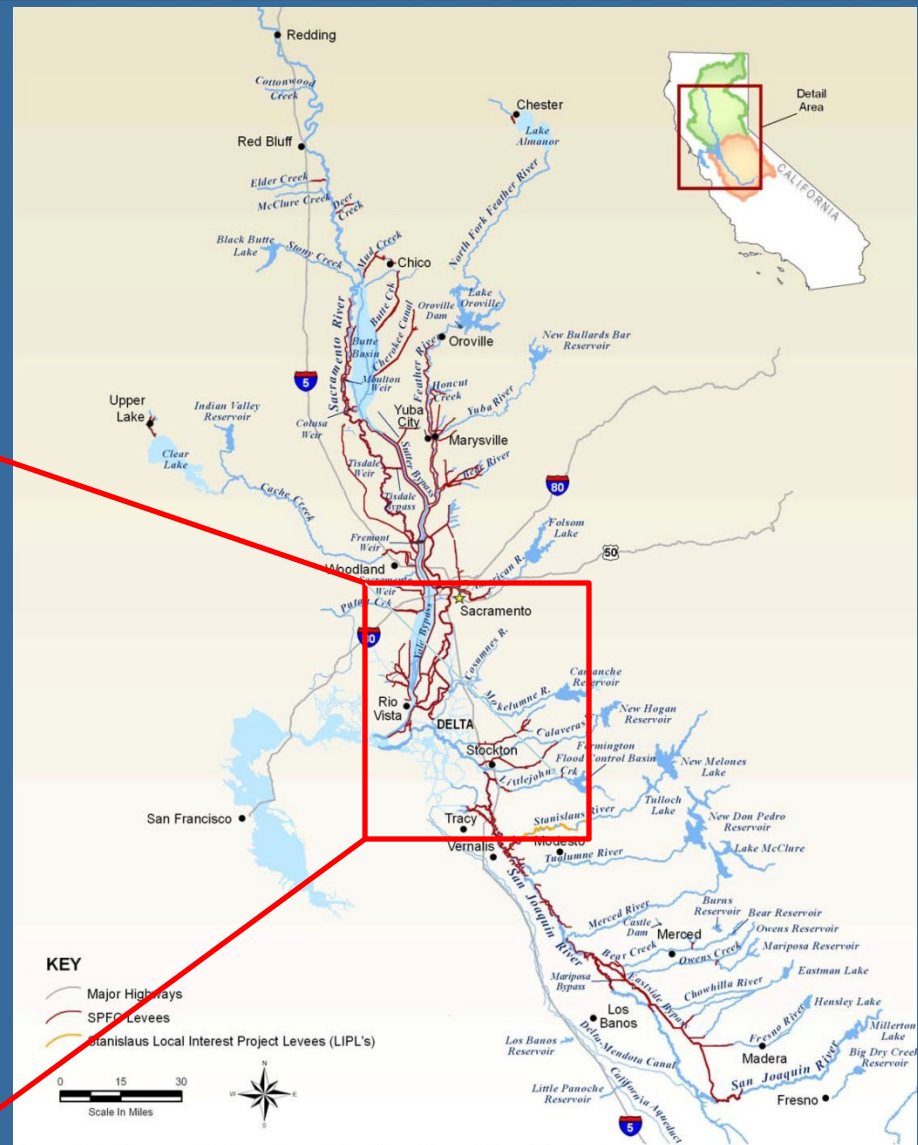
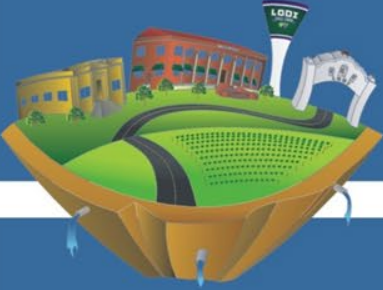


Figure G-1. Geographic Overview of the State Plan of Flood Control
January 2010

Senate Bill 5



- Strengthen the link between flood management and land use.
- Requires urban areas in the Sacramento-San Joaquin valley to make findings related to an “Urban Level of Flood Protection” before approving certain land use decisions.
- Defines “urban level of flood protection” as the level of protection that is necessary to withstand flooding that has a 0.5% (1 in 200) chance of occurring in any given year.
- (FEMA standard is a 100-year Level of Flood Protection).

Senate Bill 5

Sacramento and San Joaquin Valley Watershed



Senate Bill 5



Requires that 200-year Flood Protection findings shall be made before a land use agency can:

1. Enter into a development agreement for any property that is located in the flood hazard zone;
2. Approve a discretionary permit or other discretionary entitlement, or ministerial permit that would results in the construction of a new residence, for a project that is located within the flood hazard zone; or
3. approve a tentative map, or parcel for which a tentative map was not required, for any subdivision that is located within a flood hazard zone.

(Note: New 200-year requirement does not apply to remodel/reconstruction of an existing dwelling unit)

Senate Bill 5



- Does not specify any enforcement authority, but instead relies on the due diligence of cities and counties to incorporate flood risk considerations into floodplain management and planning.



Senate Bill 5

- Milestones and Deadlines:
 1. Cities and counties amend their General Plans no later than July 2, 2015.
 2. Cities and counties amend their Zoning Ordinance within 12 months after completion of the General Plan amendment or no later than July 2, 2016.
 3. In 2016, staff believed that the City is outside the 200-year flood risk based on the FIRM map published on the San Joaquin County website. The map shown Lodi falls within the 500-year flood zone (Zone X 500).
 4. In 2017, staff revisited the FIRM map and concluded that Lodi actually falls within the 100-year to 500-year flood zone.



200-Year Floodplain Study

- The floodplain maps released by DWR did not include City of Lodi. It did include City of Chico, Yuba City, Marysville, Sacramento, West Sacramento, Elk Grove, Woodland, Davis, Stockton, Lathrop and Merced.
- Lodi contracted with Kjeldsen, Sinnock & Neudeck Engineering (KSN) in December of 2017 to conduct the 200-year floodplain study.
- Their results were independently reviewed by Civil Engineering Solutions, Inc. as required by DWR when determining the urban level of flood protection.
- The study was completed in December of 2018.



200-Year Floodplain Study

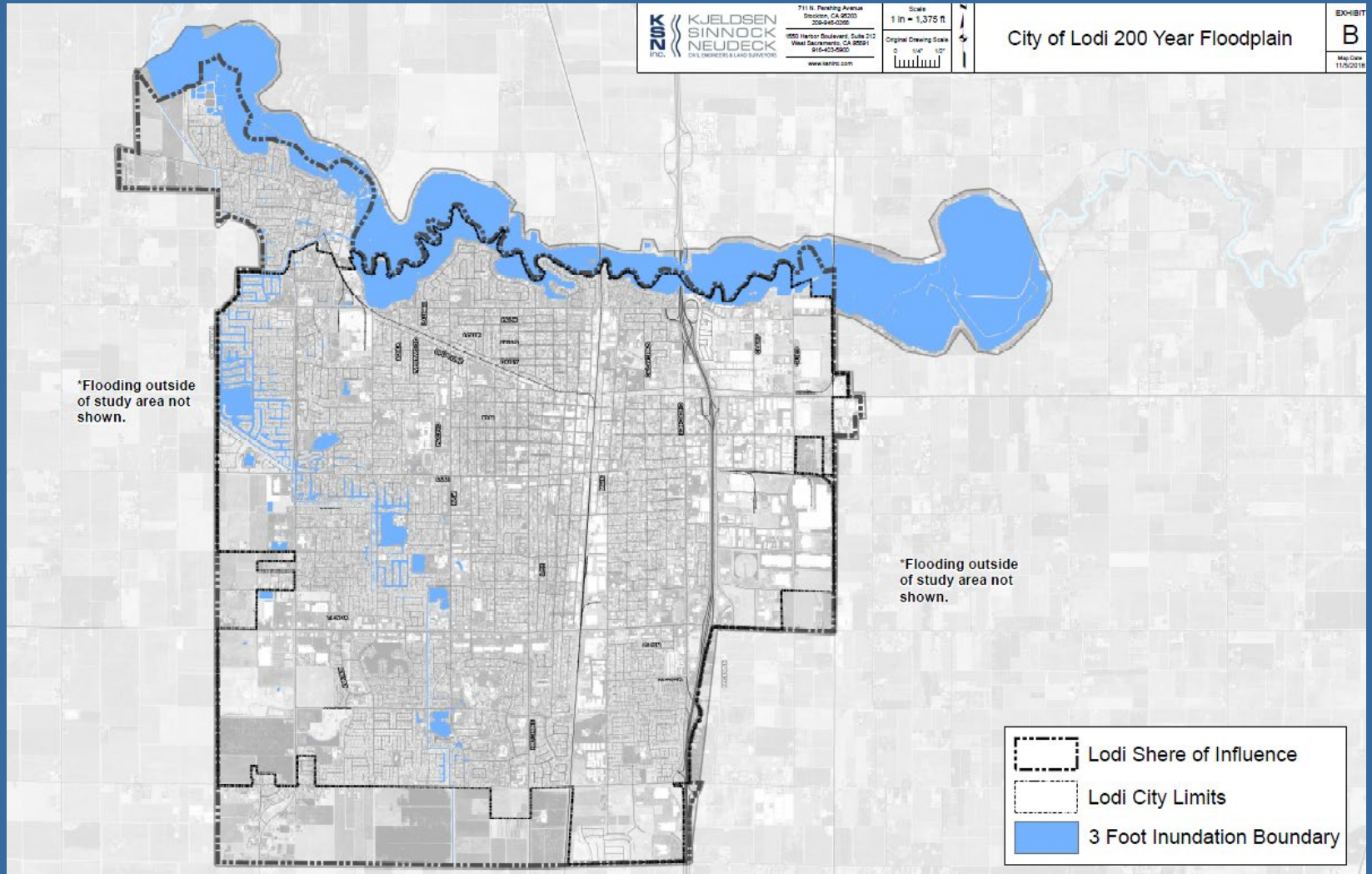
- KSN developed a model to simulate the flooding from the Mokelumne River which is the major source of flooding for the Lodi urban area during a 200-year storm event.
- The model shows majority of the urban area is above the 200-year floodplain.
- Certain area immediately east and north of the Woodbridge Irrigation District (WID) canal would experience 2 to 3 feet of flooding.





200-Year Floodplain Study

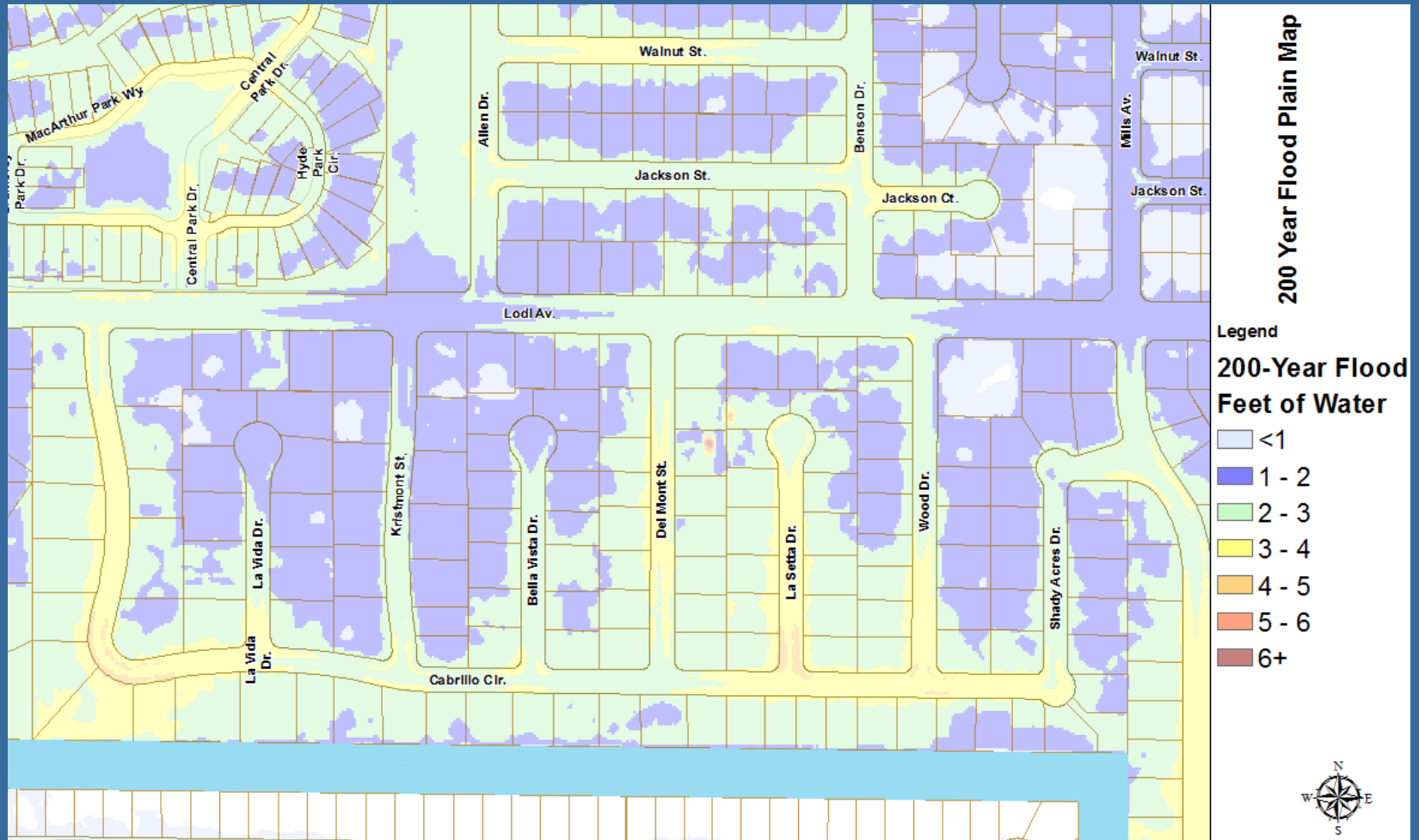
- 200-year floodplain map





200-Year Floodplain Study

- Map of Shady Acre (north of WID Canal)





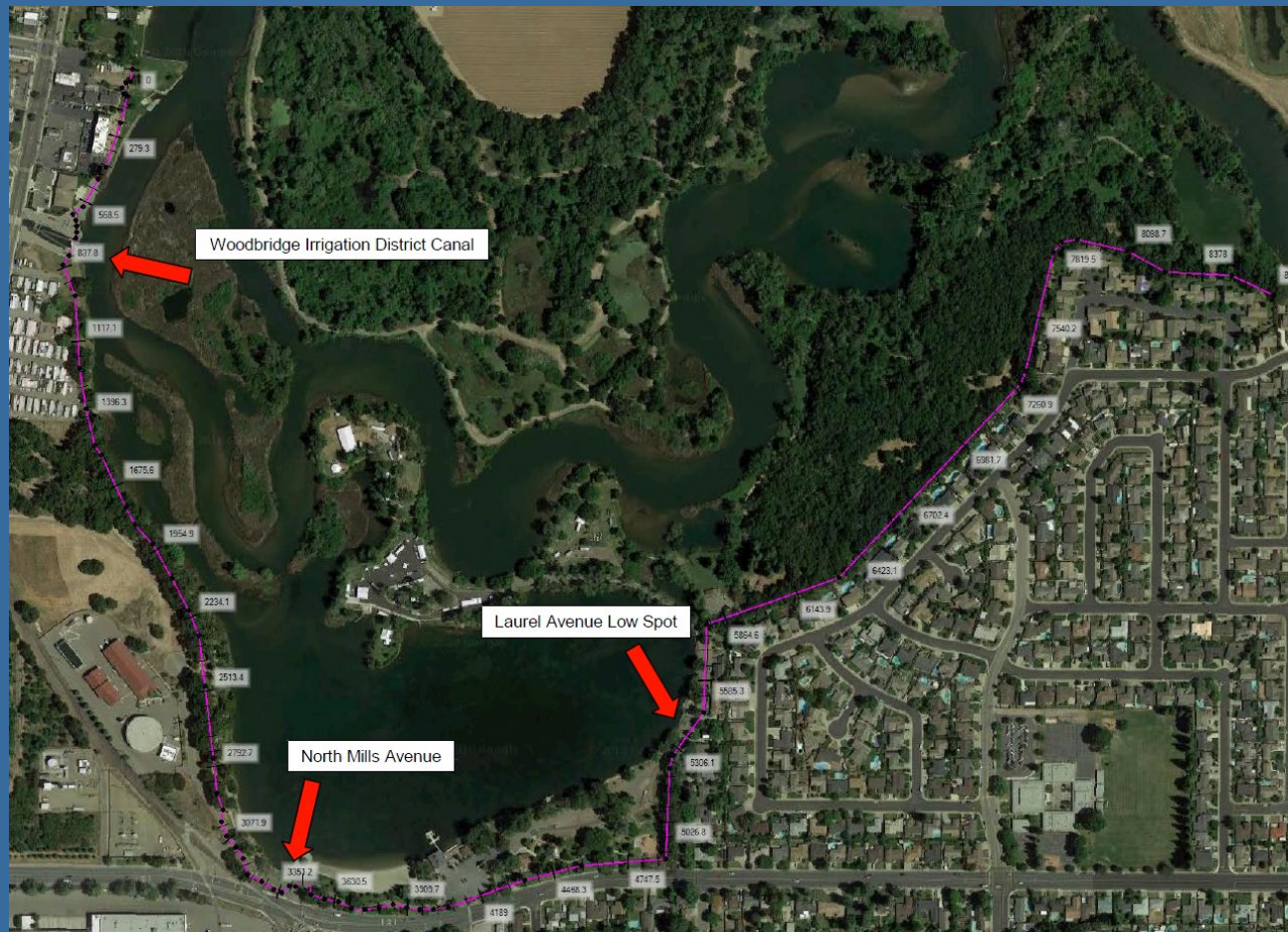
200-Year Floodplain Study

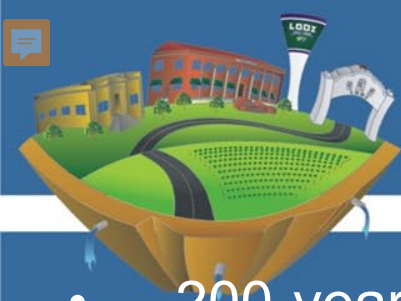
- All new residential developments approved after July 2, 2016 met the 200-year flood protection requirements.
- Future Developments within the 2010 General Plan boundary will also meet the 200-year flood protection requirements.



Flood Management Options

- The mapping identified low points along the Mokelumne River where the flood water could enter the urban area during a 200-year flood event.





Flood Management Options

- 200-year map with North Mills Improvement (Before)

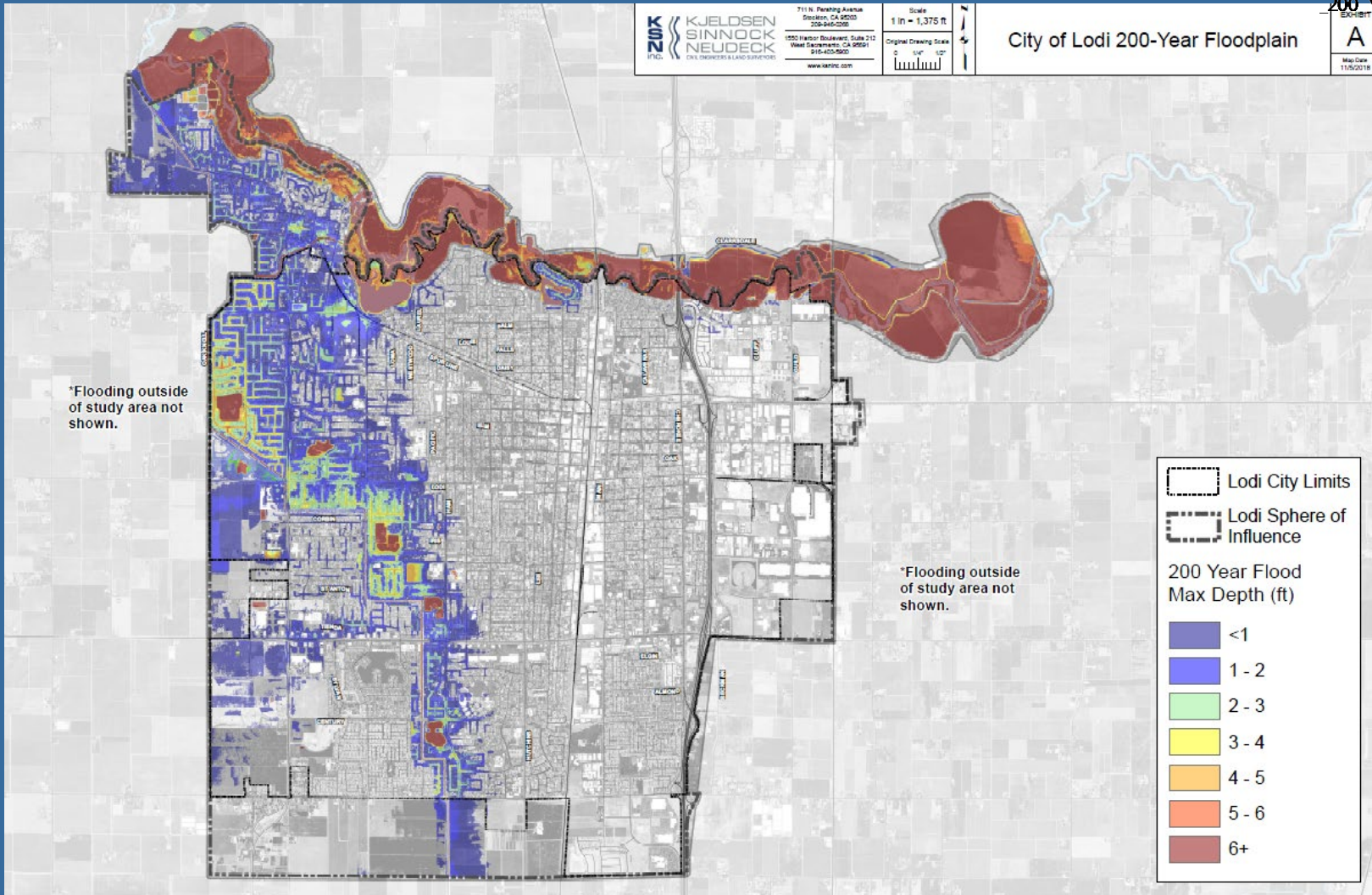
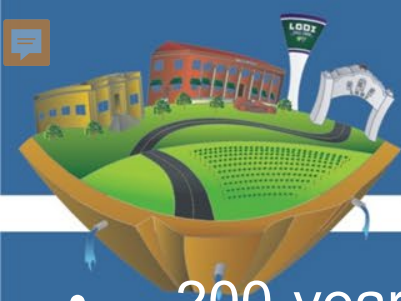


Exhibit
200 Year Floodpla

A

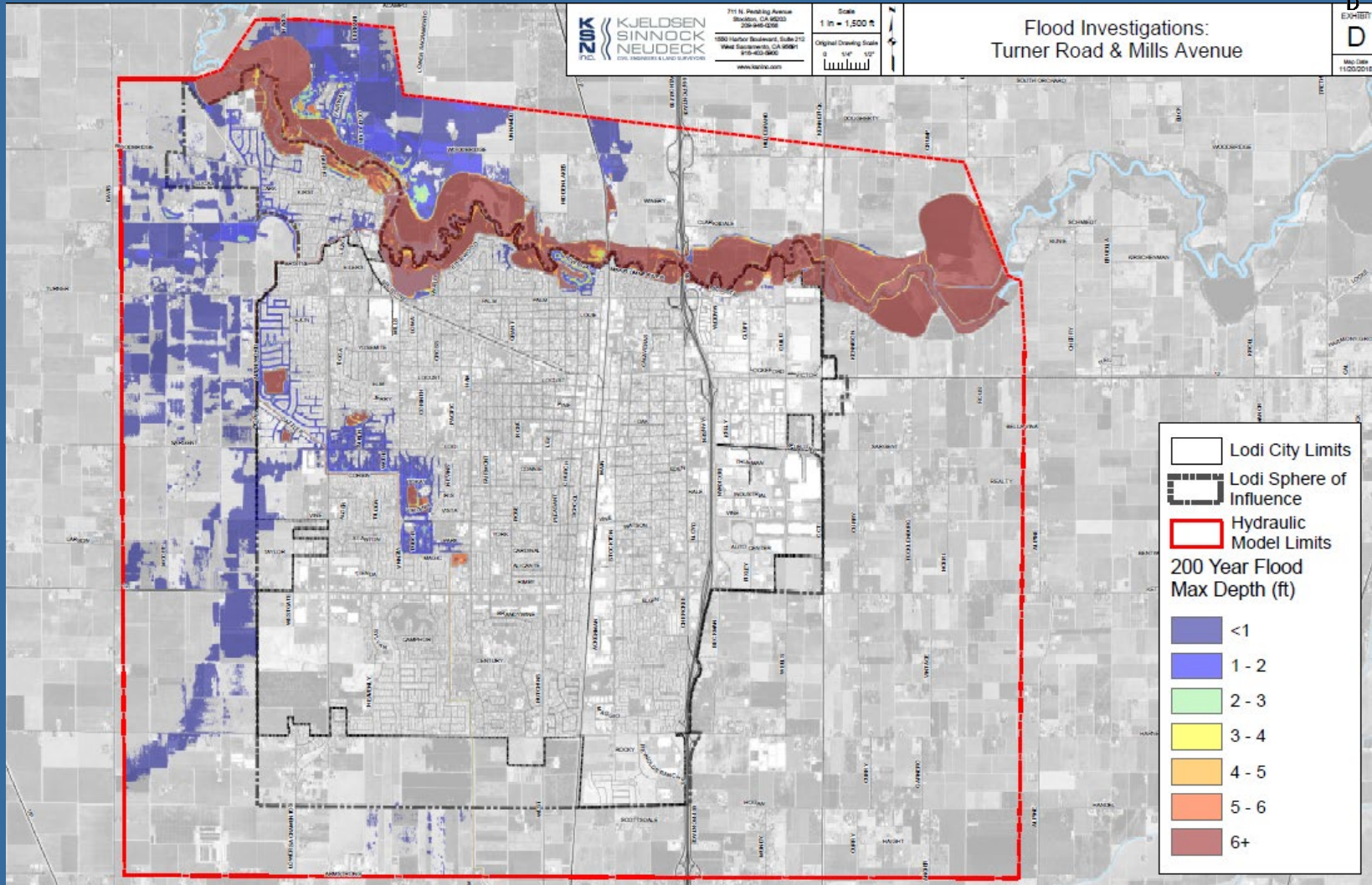


Flood Management Options

- 200-year map with North Mills Improvement (After)



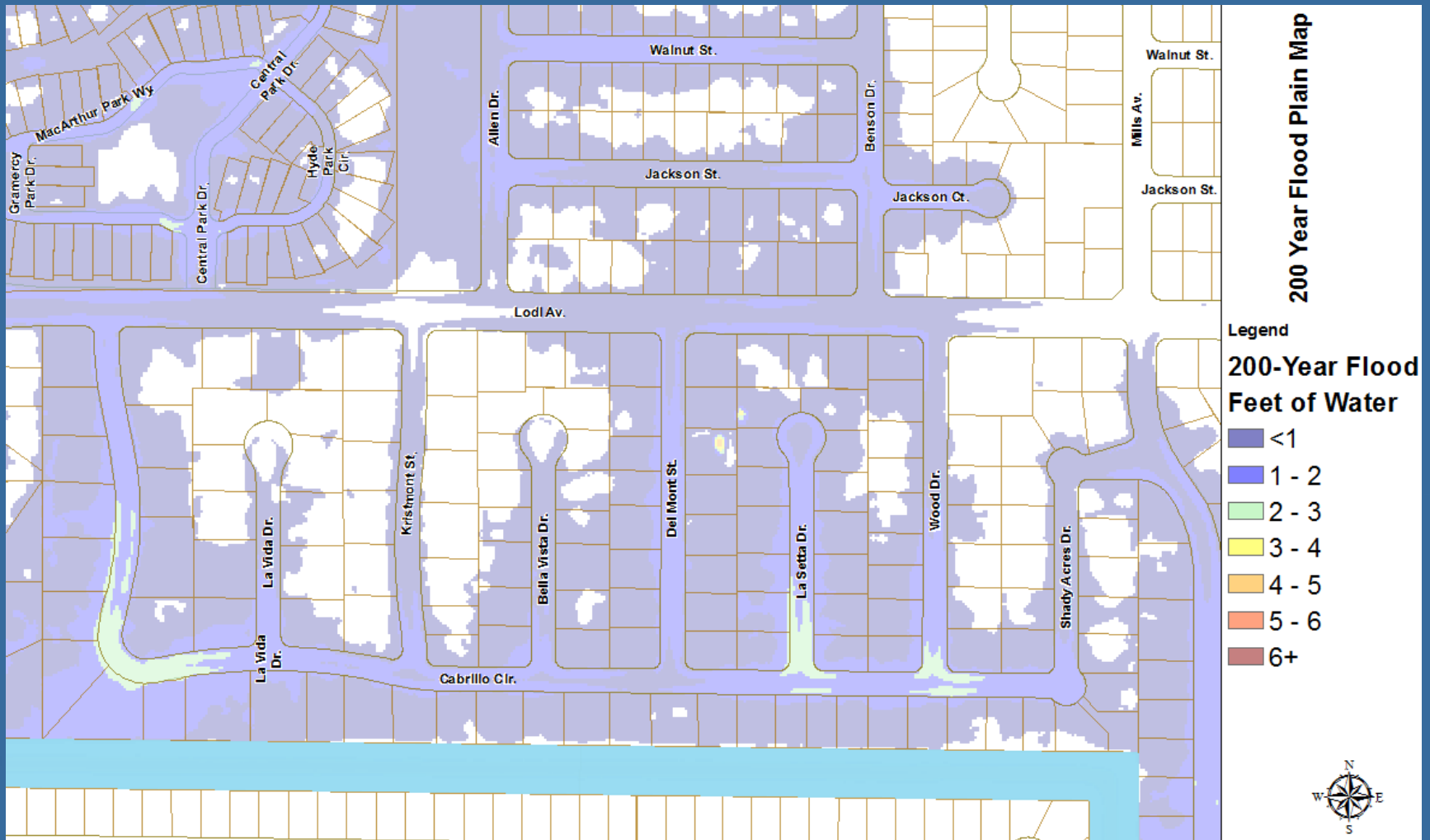
Exhibit
D-TMO_flooding

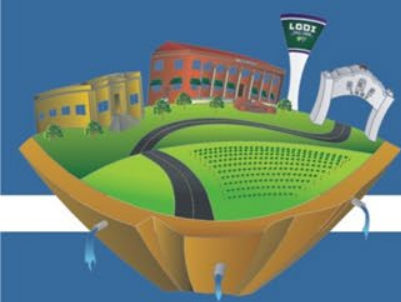




Flood Management Options

- 200-year map with North Mills Improvement (After)





Flood Management Options

- FEMA defines the Base Flood Elevation (BFE) as the computed elevation to which floodwater is anticipated to rise during the 100-year (base) flood.
- Currently all new residential construction in Lodi is required be built with the lowest floor elevation 18" above the 100-year BFE. (LMC 15.60.180.C.)
- City now needs to set a new 200-year flood protection standard:
 - DWR allows up to three feet of standing water at the 200-year flood event.
 - This 3-foot allowance was geared towards redevelopment areas.
 - Expectation is that new greenfield development would be above the 200-year flood plain.
 - Should Lodi require a higher 200-year standard?



Flood Management Options

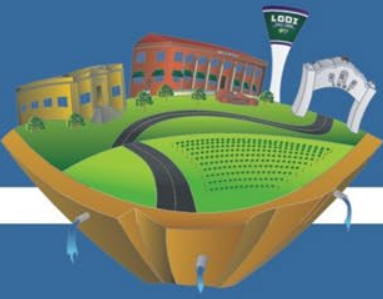
- Why raise the level of flood protection?
 1. So that there is the least amount of flooding and associated damage to a property during a 200-year flooding event.
 2. Allows the community to have a faster recovery after a major flood event.
 3. Reduces the likelihood that citizens have to be evacuated/rescued during a major flood event.
 4. Property owners/home buyers have an expectation that having a 200-year flood protection means they stay dry during a 200-year flood.
 5. It may help the owner to obtain a better flood insurance rate similar to FEMA 100-year flood protection.



Flood Management Options

- A. Allow new development to have up to 3 feet of flooding during a 200-year flood.
- B. Require new development to be at or above the 200-year floodplain elevation (or 18 inches above 100-year floodplain whichever is higher).
- C. Require new development to be 18 inches above 200-year floodplain elevation.
 - Some existing properties may not be physically possible or feasible to provide the extra elevation to meet the 18 inches requirement.
 - Require new developments to provide disclosure regarding the 200-year flood depth information to the new buyer prior to home purchase.

Next Step



- Staff will come back to City Council to consider amendment to the General Plan (Safety Element), the zoning ordinance, and the Lodi Municipal Code related to the flood management.
- Staff will develop recommendations regarding a 200-year flood protection standard for new development.





Questions?

The City of Lodi Public Works



200-Year Flood
Risk Assessment
Council Presentation
June 4, 2019



Overview

- California Senate Bill 5 (SB 5)
 - Background Information
 - Key Points
 - Timelines
- Lodi's 200-Year Floodplain Study
 - Process
 - Results
- City Options
- The Next Step



SB 5 Background Information

- 2005 - Hurricane Katrina
 - CA legislators to strengthen the flood protection programs
- 2007 - Passed CA Senate Bill 5
 - Created specific flood risk management requirements
 - Strengthened the relationship between flood management and local land use decision making
- 2012 - Amend. SB 5 (SB 1278 and AB 1965)
 - Extended compliance timelines
 - Directed Department of Water Resources (DWR) to prepare 200-year floodplain maps for urban areas protected by State Plan of Flood Control (SPFC) facilities
 - Required non-SPFC urban areas (Lodi) to prepare their own 200-year floodplain maps



SB 5 Background Information

State Plan of Flood Control (SPFC) facilities

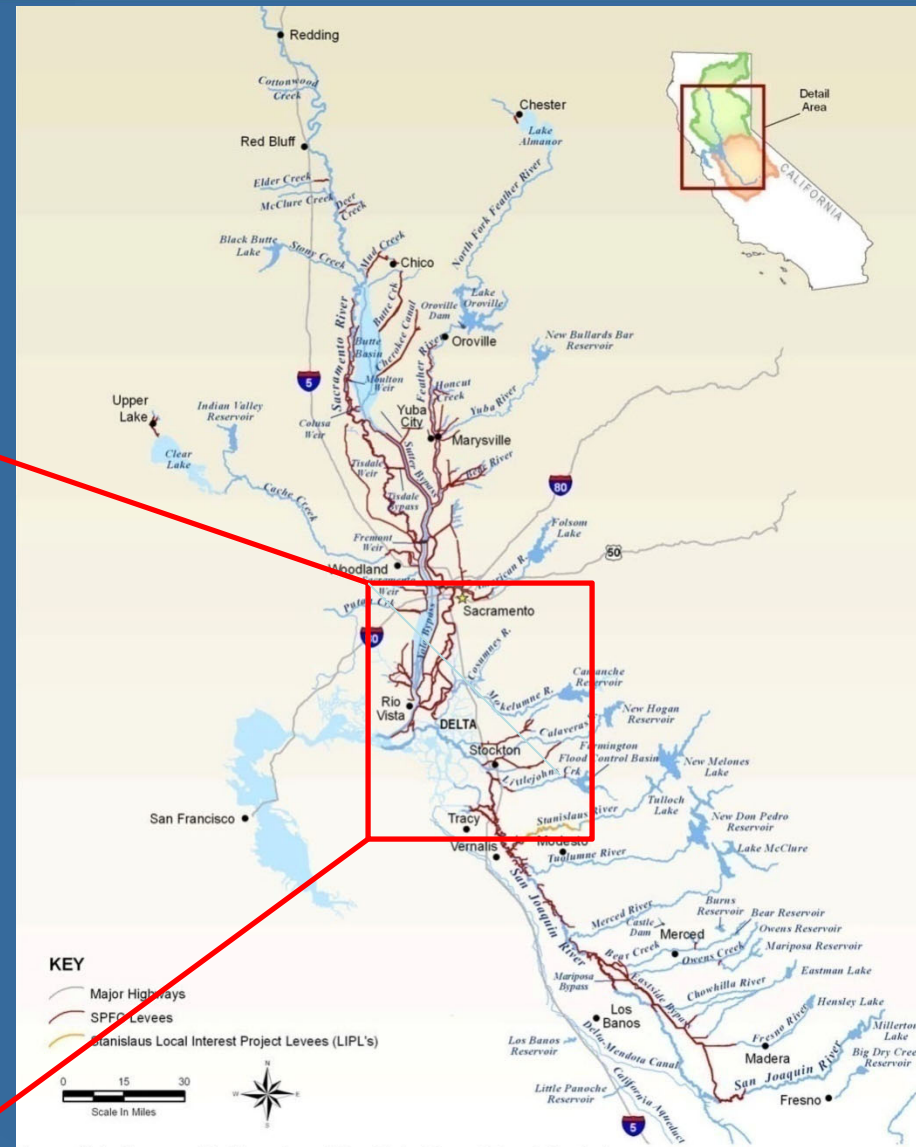


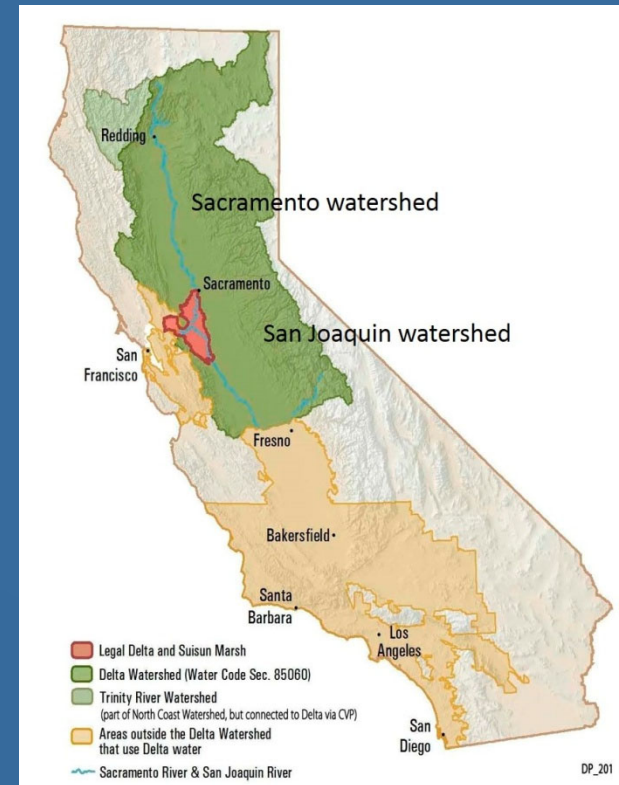
Figure G-1. Geographic Overview of the State Plan of Flood Control
January 2010



SB 5 Key Points

- Sacramento-San Joaquin Valley (Urban Areas)
- “Urban Level of Flood Protection” findings prior to certain land use approval
 - Level necessary to withstand flooding that has a 0.5% chance (1 in 200) of occurring each year
- “Withstand” < 3’ flood depth
- Does not analyze local drainage system

Note: Different from Federal Flood Zones (FEMA), 1% chance (1 in 100) of occurring each year





SB 5 Key Points

SB 5 Compliance Findings Required Prior to:

1. Agency entering into a development agreement on a property in the flood hazard zone;
2. Approving a discretionary permit or entitlement for construction of a new residence in the flood hazard zone; or
3. Approving a Tentative Map or Parcel Map for a subdivision in the flood hazard zone.

Note: SB 5 requirements are not applicable to remodel / reconstruction of an existing dwelling unit



SB 5 Timelines

Deadlines

- July 2, 2015 - Amend General Plan
- July 2, 2016 - Amend Zoning Ordinance

Milestones

- 2015 - Staff believed the City was outside the 200-year flood risk (based on the FEMA 500-year flood zone designation)
- 2017 - Staff revisited the issue and concluded that Lodi actually falls between the 100-year to 500-year flood zones
 - 200-Year Mapping Required
- Dec, 2017 - City hires Kjeldsen, Sinnock & Neudeck, Inc. (KSN) for 200-Year Floodplain Study
 - Also contracted Civil Engineering Solutions for independent review (required by SB 5)
- Dec, 2018 - Floodplain Study and Mapping Completed



200-Year Floodplain Study

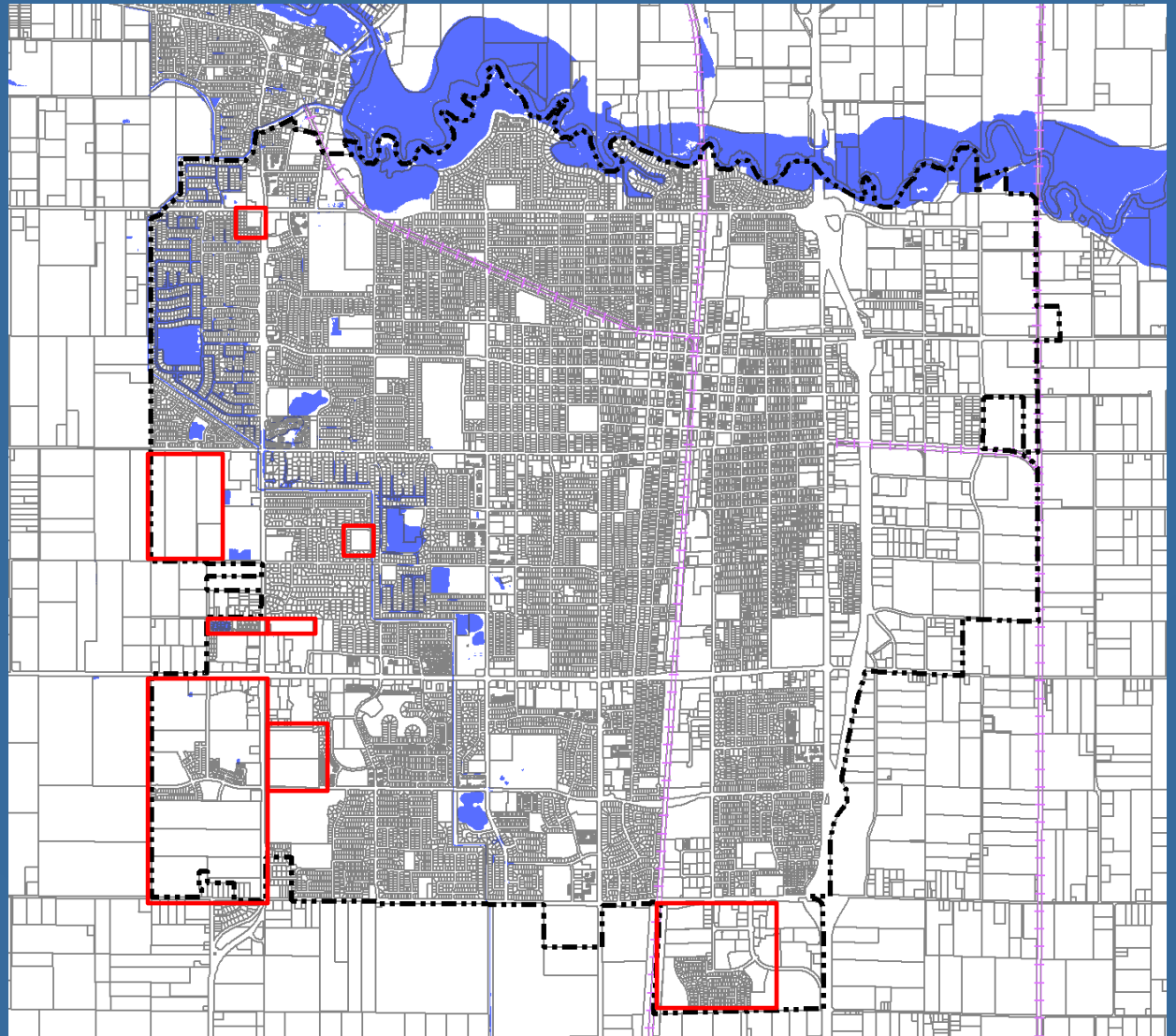
- Mapping Process
 - KSN built a stormwater model to simulate the runoff for the entire Mokelumne River tributary area
 - Calibrated the model with known storm event data
 - Built a separate 3D surface of the City
 - Ran the 200-year stormwater model with the 3D surface
 - Mapped the flood water depths on the 3D surface
 - Identified critical locations where floodwater enters the City



200-Year Floodplain Study

Results

- Color Map
- WID Canal
- River Low Points
 - Mills & Turner
 - WID Fish Screens
- Minimal Areas $> 3'$
(SB 5 Restriction)
- Developments Since 2015 $< 3'$
- 2010 GP Areas $< 3'$





200-Year Flood Plain Study

City Options

- Set 200-Year Flood Protection Standards:

- ➔ ○ Allow up to 3' of standing water (SB 5 standard maximum)
- Be more restrictive (i.e. no standing water, or up to 1' or 2')

- Requirements when Not Met:

- ➔ ○ Require to raise building floor to 200-Year Flood Elevation
- Require a height above the 200-Year Flood Elevation (i.e. 6" or 12")

- Projects to Provide Additional Flood Protection

- ➔ ○ Wall at Mills & Turner

- Staff Recommendation:

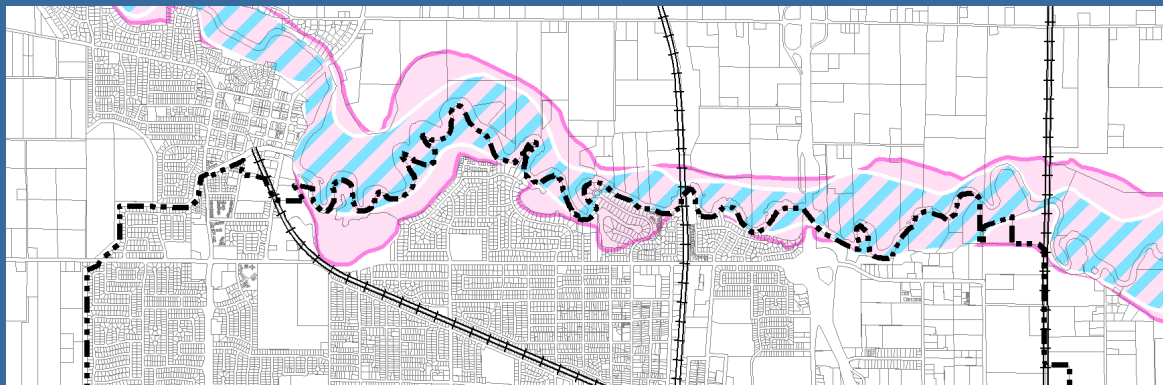
- Standards to meet minimum SB 5 Compliance
 - Already FEMA compliant
 - Minimize burden on citizens and developers
- Project(s) for additional protection



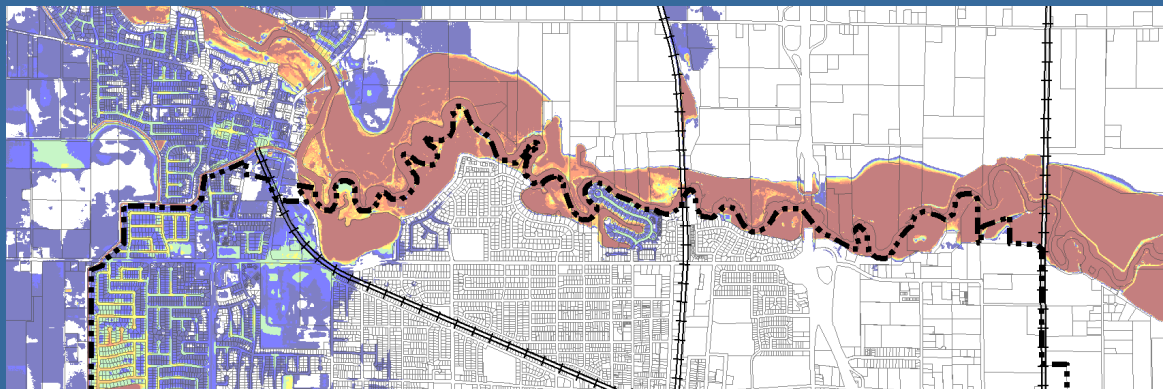
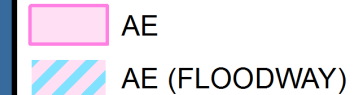
200-Year Flood Plain Study

Requirements in FEMA & 200-Year Flood Areas

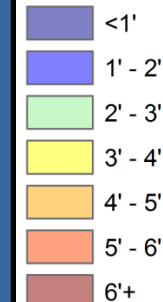
- Current LMC (15.60.180.C) requires development in FEMA Flood Zones to be 18" above the 100-Year Flood Elevation.
- Revise to the greater of 200-Year or FEMA Requirements.



FEMA Flood Zones



200-Year Flood Depths

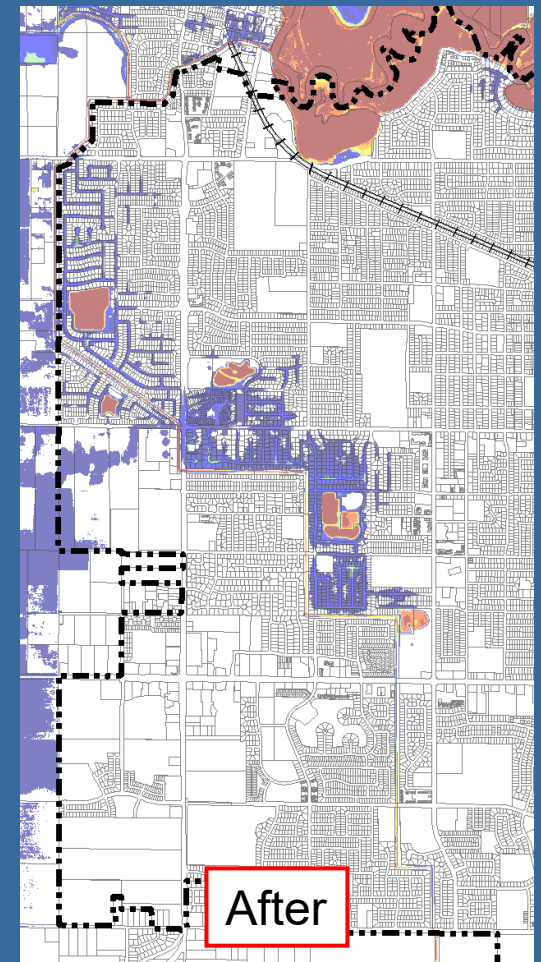
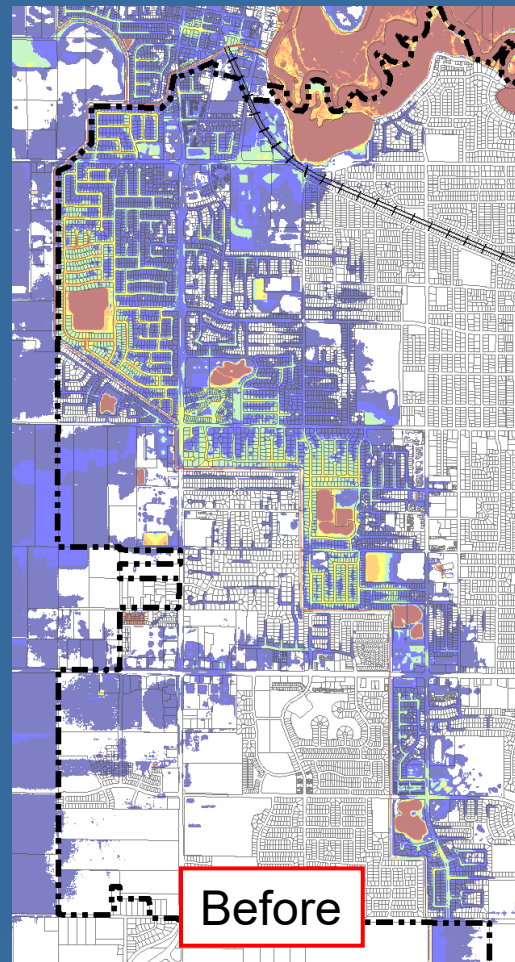
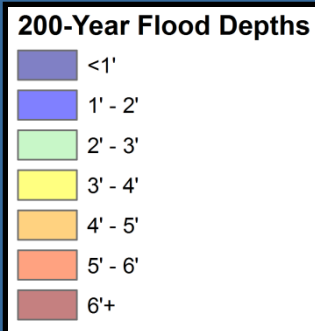




200-Year Flood Plain Study

Project to Provide Additional Protection

- Turner & Mills Wall
 - Same as City's current Emergency Plan
 - More Permanent & Structurally Sound
 - Greatly Reduces Flood Depths
 - No Impact on SB 5 Compliance





200-Year Flood Plain Study

Next Step

•Amendments:

- General Plan (Safety Element)
- Zoning Ordinance Amendment
- Lodi Municipal Code (Flood Management)

•Staff Recommendations

- Minimum SB 5 Requirements:
 - Allowing up to 3' of standing water
 - If over 3', require buildings to be raised up to 200-Year Flood elevation
 - Project to construct a wall at Turner & Mills





Questions?